

Notice of Allowability

Application No.

10/054,760

Examiner

Brian J. Sines

Applicant(s)

WIGGINS ET AL.

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the response filed 7/15/2004.
2. ☒ The allowed claim(s) is/are 1,4-8,12-27 and 46-49.
3. ☒ The drawings filed on 13 November 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sonia K. Guterman on 9/29/2004.

The application has been amended as follows:

1. A microfluidic device for analyzing a plurality of sample fluids, the device comprising:
a plurality of interaction cells;

a fluid control means including i) means for providing to the interaction cells a preparation fluid, and ii) means for providing to the interaction cells a sample fluid, wherein each interaction cell receives a different sample fluid, wherein the interaction cells and the fluid control means are within a housing; and

a plurality of identically configured microcantilevers disposed in each of the interaction cells, wherein each of the plurality of microcantilevers within [the] an interaction cell is identically configured to deflect in response to an interaction involving [a] the same component of the sample fluid provided to the interaction cell, thereby analyzing the plurality of sample fluids in the plurality of interaction cells.

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8. A microcantilever platform cartridge comprising:

a plurality of interaction cells, each of the interaction cells including an inlet for receiving a sample fluid, wherein each of the interaction cells receives a different sample fluid, and the interaction cells and inlets are disposed within a housing of the cartridge; and

a plurality of identically configured microcantilevers disposed in each of the interaction cells, the plurality of microcantilevers disposed in an individual interaction cell capable of deflecting in response to chemical interaction with [a] the same component of the sample fluid.

12. An apparatus for performing microfluidics analysis, the apparatus comprising:

a housing, the housing comprising a plurality of fluid lines, each of the fluid lines including an inlet for receiving a fluid from a fluid pump, and a plurality of control lines in communication with the fluid lines, each of the control lines including an inlet for receiving a control fluid;

a microcantilever platform, the microcantilever platform comprising: a plurality of interaction cells, each of the interaction cells including an inlet for receiving one or more preparation fluids and a sample fluid, wherein each of the interaction cells receives a different sample fluid, and an outlet whereby fluid may flow out of the interaction cell, wherein the interaction cells, inlets and outlets are within the housing, and wherein each interaction cell is configured to receive a plurality of identically configured microcantilevers, the plurality of microcantilevers in [the] an individual interaction cell being identically configured to deflect in response to an interaction involving [a] the same component of a sample fluid; and

a plurality of valves in communication with the fluid lines for selectively controlling the flow of fluid into and out of the interaction cells.

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46. A microfluidics device cartridge comprising:

a plurality of interaction cells, each of the interaction cells being configured to receive a plurality of identically configured microcantilevers, wherein each of the microcantilevers in the plurality in each interaction cell is identically configured to deflect in response to a chemical interaction; and

a fluid control means including i) means for providing to the interaction cells a preparation fluid, and ii) means for providing to the interaction cells a sample fluid, wherein each interaction cell receives a different sample fluid.

47. A microfluidics device comprising:

a housing, the housing comprising a plurality of fluid lines, each of the fluid lines including an inlet for receiving a fluid from a fluid pump disposed within the housing, and a plurality of control lines in communication with the fluid lines, each of the control lines including an inlet for receiving a control fluid;

a microcantilever platform within the housing, the microcantilever platform comprising a plurality of interaction cells, each of the interaction cells configured to receive a plurality of identically configured microcantilevers, and each of the interaction cells includes an inlet for receiving one or more preparation fluids and a sample fluid, wherein each of the interaction cells receives a different sample fluid, and an outlet whereby fluid may flow out of the interaction cell; and

a plurality of valves in communication with the fluid lines for selectively controlling the flow of fluid into and out of the interaction cells.

Allowable Subject Matter

Claims 1, 4 – 8, 12 – 27 and 46 – 49 are allowed.

The following is an examiner's statement of reasons for allowance:

Furcht et al. (U.S. Pat. No. 6,054,277 A) teach an analytical microfluidic apparatus incorporating the use of a plurality of microcantilevers comprising an internal reference microcantilever sensor, a relevant negative control microcantilever sensor and a third microcantilever sensor for the detection of a specific analyte in a single detection chamber (see col. 10, line 63 – col. 11, line 9; figures 7a – 7d). The cited prior art neither teach nor fairly suggest a microfluidic apparatus incorporating the use of a plurality of identically configured microcantilevers contained within an individual interaction cell for sample fluid analysis, as recited in claims 1, 8, 12, 46 and 47.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on M-F (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill Warden
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Technology Center 1700